

REMARKS

Claims 1-17, 26-30, and 32-44 are pending and stand rejected. Claim 17 was rejected under 35 U.S.C. §102 over U.S. Patent No. 6,584,439 to Geilhufe (“the Geilhufe patent”). Claims 1-16, 26-30, and 32-44 were rejected under 35 U.S.C. §103 over U.S. Patent No. 6,324,512 to Junqua (“the Junqua patent”) in view of an article by Giuliani (“Hands Free Continuous Speech Recognition in Noisy Environment Using a Four Microphone Array”) and U.S. Patent No. 6,408,272 to White (“the White patent”). The Applicants traverse these rejections for the reasons stated below.

As for claim 17, the claim recites searching for an attention word based upon a first context. The first context includes a first set of models, grammars, and lexicons. Upon finding an attention word, the claim further recites switching to a second context to search for an open-ended user request. The second context includes a second set of models, grammars, and lexicons.

In contrast, the Geilhufe reference teaches voice-controlled devices with speech recognition capabilities that have user assignable appliance names and/or default appliance names that are used to address the devices. See Geilhufe, Abstract. When a user addresses a device, the device recognizes its name and, after it recognizes its name, the device listens for a device-specific command. Geilhufe, col. 18, lines 38-47. For example, if a phone named “Aardvark” hears the command “Aardvark call Mom,” the phone will dial the number programmed by the user for “Mom.” *Id.* In other words, the device listens for device specific requests (i.e., information that identifies a user and a command specific to the particular device) having a single and unchanging context. Consequently, the Geilhufe reference does not teach or suggest switching to a *second* context to search for an *open-ended user request*. Since an element of claim 17 is not taught or suggested by Geilhufe, it is believed that claim 17 is allowable.

As for claim 1, the claim recites a three dimensional microphone array, a feature extraction module, a speech recognition module, a natural language interface module, and a device interface. The interface operates a plurality of devices coupled to the interface with the operation based upon non-prompted and open-ended natural language requests from a user.

The Applicants mentioned in their specification that any type of request can be made and processed by the system. Specifically, the Applicants describe a system where a natural language control interface control system 102 receives an open-ended request. After receiving these open-ended commands, the system “issue[s] the appropriate commands to the respective devices.” See Specification, page 5. In other words, the Applicant’s system receives commands relating to *any* type of device and processes these commands appropriately.

In contrast, with respect to the Junqua patent, users of the system can access TV and radio contents and interact directly with the television and multimedia equipment. See Junqua, Abstract. More specifically, a speaker verification/identification module in Junqua first determines the identity of the speaker and this information then controls a predefined dialog between the speaker and the device. After identity is determined, the device may also prompt the user for further information. *Id.*, col. 3, lines 1-8. Additionally, after the identity of the user is determined and a user’s instruction is received, the device may be operated according to the instruction. *Id.* at col. 3, lines 11-17. In any case, the first “command” received by the device must identify the user and be specific to the device; this command is not an open-ended natural language request as recited in claim 1. In addition, the interface in Junqua operates at most with only a single type of device (i.e., the type of the device associated with the interface) and is not capable of operating with a plurality of devices of one or more types as recited in claim 1.

To take one example, if a user sent the command “Turn on the TV to channel 2” to a radio in Junqua’s system, the radio would remain inoperative and the command would be ignored since (1) the radio could not process commands intended for a TV and (2) the identity of the user may not necessarily be able to be determined. In contrast, the Applicant’s claimed approach could handle this open-ended request by having the interface send an appropriate command or commands to the appropriate device, in this case to a television.

As for the Giuliani reference, a system is described that enhances the received speech signal. See Giuliani, page 1. According to the reference, spectrum-based enhancement is performed to improve the signal quality. Giuliani is silent as to receiving open-ended natural language requests or operating a plurality of devices of one or more types as recited in claim 1.

As for White, local devices 14 receive voice commands that are specific to these local devices. Column 4, line 66-col. 5, line 15. If, after recognizing the device-specific command, the device 14 determines that the command requires processing capabilities unavailable at the

device, a remote system 12 may further process the request. Col. 14, lines 2-10. For instance, the remote system 12 may retrieve Internet information after receiving a request from a device if the device 14 cannot directly interface with the Internet. In any case, the commands received at any device 14 are always specific to the device. Consequently, the White system does not teach the receipt of an open-ended natural language request as recited in claim 1. In addition, White does not teach or suggest operating a plurality of devices of one or more types from a single interface as recited in claim 1.

Since elements of claim 1 are not taught or suggested by any of the references in the proposed combination, it is believed that claim 1 is allowable.

Independent claims 6-10 and 26 have recitations similar to claim 1 and it is believed that these claims are allowable for the same reasons as those given above with respect to claim 1. The remaining claims depend directly or indirectly upon these independent claims, and it is believed the remaining claims are allowable.

The Commissioner is hereby authorized to charge any additional fees which may be required in this application to Deposit Account No. 06-1135.

Respectfully submitted,

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